

AMENDMENTS TO CLAIMS

1. (Currently Amended) A method for managing configuration data for a router, the method comprising the machine-implemented steps of:

a client querying the router to determine a plurality of functional areas supported by the router;

the client receiving, from the router, data indicating the plurality of functional areas supported by the router;

the client generating and displaying a plurality of user interface objects on a graphical user interface, wherein each user interface object from the plurality of user interface objects corresponds to configuration data for one of the plurality of functional areas supported by the router;

wherein generating and displaying the plurality of user interface objects further comprises, based on the data indicating the plurality of functional areas supported by the router, determining which user interface objects to generate and display;

wherein determining which user interface objects to generate and display comprises identifying user interface objects (a) that correspond to the plurality of functional areas supported by the router; and (b) for which the client and the router have compatible application program interfaces; and

in response to detecting a user selection of a particular user interface object from the plurality of user interface objects, the client:

allowing the user to modify the configuration data corresponding to the particular user interface object to generate modified configuration data; and
sending the modified configuration data to the router.

2. (Currently Amended) A machine-readable medium for managing configuration data for a router, the machine-readable medium carrying instructions which, when executed by one or more processors at a client, cause the one or more processors at the client to perform the steps of:

querying the router to determine a plurality of functional areas supported by the router;

receiving, from the router, data indicating the plurality of functional areas supported by the router;

generating and displaying a plurality of user interface objects on a graphical user interface, wherein each user interface object from the plurality of user interface objects corresponds to configuration data for one of the plurality of functional areas supported by the router;

wherein generating and displaying the plurality of user interface objects further comprises, based on the data indicating the plurality of functional areas supported by the router, determining which user interface objects to generate and display;

wherein determining which user interface objects to generate and display comprises identifying user interface objects (a) that correspond to the plurality of functional areas supported by the router; and (b) for which the client and the router have compatible application program interfaces; and

in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,

allowing the user to modify the configuration data corresponding to the particular user interface object to generate modified configuration data; and
sending the modified configuration data to the router.

3. (Currently Amended) An apparatus for managing configuration data for a router, the apparatus comprising one or more processors and a memory storing instructions which, when executed by the one or more processors, cause the one or more processors at the apparatus to perform the steps of:

querying the router to determine a plurality of functional areas supported by the router;
receiving, from the router, data indicating the plurality of functional areas supported by the router;

generating and displaying a plurality of user interface objects on a graphical user interface, wherein each user interface object from the plurality of user interface objects corresponds to configuration data for one of the plurality of functional areas supported by the router;

wherein generating and displaying the plurality of user interface objects further comprises, based on the data indicating the plurality of functional areas supported by the router, determining which user interface objects to generate and display;

wherein determining which user interface objects to generate and display comprises identifying user interface objects (a) that correspond to the plurality of functional areas supported by the router; and (b) for which the client and the router have compatible application program interfaces; and

in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,
allowing the user to modify the configuration data corresponding to the particular user interface object to generate modified configuration data; and
sending the modified configuration data to the router.

4. (Currently Amended) A method for managing network device configuration data, the method comprising the machine-implemented steps of:

a client determining which of a plurality of functional areas are supported by a network device; and

the client generating and displaying a plurality of user interface objects on a graphical user interface, wherein each user interface object from the plurality of user interface objects corresponds to configuration data for one of the plurality of functional areas that is supported by the network device;

wherein generating and displaying the plurality of user interface objects further comprises, based on which of the plurality of functional areas are determined to be supported by the network device ~~router~~, determining which user interface objects to generate and display; and

wherein determining which user interface objects to generate and display comprises identifying user interface objects (a) that correspond to the plurality of functional areas supported by the network device; and (b) for which the client and the network device have compatible application program interfaces.

5. (Original) The method as recited in Claim 4, further comprising the machine-implemented step of selecting the visual appearance of a particular user interface object from the plurality of user interface objects to reflect a state of the configuration data corresponding to the particular user interface object.

6. (Original) The method as recited in Claim 4, further comprising the machine-implemented step of in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,

retrieving, from the network device, configuration data corresponding to the particular user interface object,

allowing the user to modify the configuration data corresponding to the particular user interface object to generate modified configuration data, and
sending only the modified configuration data to the network device.

7. (Original) The method as recited in Claim 6, further comprising the machine-implemented step of launching one or more of a plurality of application programs to allow the user to modify the configuration data corresponding to the particular user interface object.

8. (Original) The method as recited in Claim 6, further comprising the machine-implemented step of changing the visual appearance of the particular user interface object to indicate to the user that the configuration data corresponding to the particular user interface object has been modified.

9. (Original) The method as recited in Claim 6, further comprising the machine-implemented step of in response to detecting a user selection of another user interface object associated with committing changes in configuration data on network devices, sending to the network device a request for the network device to implement the modified configuration data.

10. (Original) The method as recited in Claim 9, further comprising the machine-implemented step of in response to receiving a notification from the network device that the modified configuration data has been implemented by the network device, changing the visual appearance of the particular user interface object to indicate to the user that the modified configuration data has been implemented by the network device.

11. (Original) The method as recited in Claim 4, further comprising the machine-implemented step of in response to determining that a particular functional area of the configuration data has been modified after the particular functional area of configuration data was received from the network device, changing the visual appearance of a particular user interface object from the plurality of user interface objects to visually indicate to a user that the particular functional area of the configuration data has been modified after the particular functional area of configuration data was received from the network device.
12. (Previously Presented) The method as recited in Claim 4, wherein the step of determining which of the plurality of functional areas are supported by the network device includes querying the network device to determine which of the plurality of functional areas are supported by the network device.
13. (Previously Presented) The method as recited in Claim 4, wherein the step of determining which of the plurality of functional areas are supported by the network device includes determining for which of the plurality of functional areas the network device and a client have compatible configuration application program interfaces.
14. (Original) The method as recited in Claim 4, further comprising the machine-implemented steps of:
 - in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,
 - retrieving, from the network device, configuration data corresponding to the particular user interface object,
 - displaying the configuration data on a graphical user interface; and
 - in response to detecting that the configuration data retrieved from the network device is no longer consistent with configuration data implemented on the network device, changing the visual appearance of the particular user interface object to indicate that the configuration data retrieved from the network device is no longer consistent with configuration data implemented on the network device.

15. (Currently Amended) A machine-readable storage medium for managing network device configuration data, the machine-readable medium storing instructions which, when executed by one or more processors at a client, cause the one or more processors at the client to perform the steps of:

determining which of a plurality of functional areas are supported by a network device;
and

generating and displaying a plurality of user interface objects on a graphical user interface, wherein each user interface object from the plurality of user interface objects corresponds to configuration data for one of the plurality of functional areas that is supported by the network device;

wherein generating and displaying the plurality of user interface objects further comprises, based on which of the plurality of functional areas are determined to be supported by the network device ~~router~~, determining which user interface objects to generate and display; and

wherein determining which user interface objects to generate and display comprises identifying user interface objects (a) that correspond to the plurality of functional areas supported by the network device; and (b) for which the client and the network device have compatible application program interfaces.

16. (Previously Presented) The machine-readable storage medium as recited in Claim 15, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of selecting the visual appearance of a particular user interface object from the plurality of user interface objects to reflect a state of the configuration data corresponding to the particular user interface object.

17. (Previously Presented) The machine-readable storage medium as recited in Claim 15, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,

retrieving, from the network device, configuration data corresponding to the particular user interface object,
allowing the user to modify the configuration data corresponding to the particular user interface object to generate modified configuration data, and
sending only the modified configuration data to the network device.

18. (Previously Presented) The machine-readable storage medium as recited in Claim 17, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of launching one or more of a plurality of application programs to allow the user to modify the configuration data corresponding to the particular user interface object.

19. (Previously Presented) The machine-readable storage medium as recited in Claim 17, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of changing the visual appearance of the particular user interface object to indicate to the user that the configuration data corresponding to the particular user interface object has been modified.

20. (Previously Presented) The machine-readable storage medium as recited in Claim 17, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to detecting a user selection of another user interface object associated with committing changes in configuration data on network devices, sending to the network device a request for the network device to implement the modified configuration data.

21. (Previously Presented) The machine-readable storage medium as recited in Claim 20, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to receiving a notification from the network device that the modified configuration data has been implemented by the network device, changing the visual appearance of the particular user interface object to indicate to the user that the modified configuration data has been implemented by the network device.

22. (Previously Presented) The machine-readable storage medium as recited in Claim 15, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to determining that a particular functional area of the configuration data has been modified after the particular functional area of configuration data was received from the network device, changing the visual appearance of a particular user interface object from the plurality of user interface objects to visually indicate to a user that the particular functional area of the configuration data has been modified after the particular functional area of configuration data was received from the network device.

23. (Previously Presented) The machine-readable storage medium as recited in Claim 15, wherein the step of determining which of the plurality of functional areas are supported by the network device includes querying the network device to determine which of the plurality of functional areas are supported by the network device.

24. (Previously Presented) The machine-readable storage medium as recited in Claim 15, wherein the step of determining which of the plurality of functional areas are supported by the network device includes determining for which of the plurality of functional areas the network device and a client have compatible configuration application program interfaces.

25. (Previously Presented) The machine-readable storage medium as recited in Claim 15, further storing one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the steps of:

- in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,
- retrieving, from the network device, configuration data corresponding to the particular user interface object,
- displaying the configuration data on a graphical user interface; and
- in response to detecting that the configuration data retrieved from the network device is no longer consistent with configuration data implemented on the network device, changing the visual appearance of the particular user interface object to indicate

that the configuration data retrieved from the network device is no longer consistent with configuration data implemented on the network device.

26. (Currently Amended) An apparatus for managing network device configuration data, the apparatus comprising one or more processors and a memory storing instructions which, when executed by the one or more processors at the client, cause the one or more processors at the client to perform the steps of:

determining which of a plurality of functional areas are supported by a network device;

and

generating and displaying a plurality of user interface objects on a graphical user interface, wherein each user interface object from the plurality of user interface objects corresponds to configuration data for one of the plurality of functional areas that is supported by the network device;

wherein generating and displaying the plurality of user interface objects further comprises, based on which of the plurality of functional areas are determined to be supported by the network device ~~router~~, determining which user interface objects to generate and display; and

wherein determining which user interface objects to generate and display comprises identifying user interface objects (a) that correspond to the plurality of functional areas supported by the network device; and (b) for which the client and the network device have compatible application program interfaces.

27. (Original) The apparatus as recited in Claim 26, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of selecting the visual appearance of a particular user interface object from the plurality of user interface objects to reflect a state of the configuration data corresponding to the particular user interface object.

28. (Original) The apparatus as recited in Claim 26, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause

the one or more processors to perform the step of in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,

retrieving, from the network device, configuration data corresponding to the particular user interface object,

allowing the user to modify the configuration data corresponding to the particular user interface object to generate modified configuration data, and

sending only the modified configuration data to the network device.

29. (Original) The apparatus as recited in Claim 28, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of launching one or more of a plurality of application programs to allow the user to modify the configuration data corresponding to the particular user interface object.

30. (Original) The apparatus as recited in Claim 28, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of changing the visual appearance of the particular user interface object to indicate to the user that the configuration data corresponding to the particular user interface object has been modified.

31. (Original) The apparatus as recited in Claim 28, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to detecting a user selection of another user interface object associated with committing changes in configuration data on network devices, sending to the network device a request for the network device to implement the modified configuration data.

32. (Original) The apparatus as recited in Claim 31, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to receiving a notification from the network device that the modified configuration data has been implemented by the network

device, changing the visual appearance of the particular user interface object to indicate to the user that the modified configuration data has been implemented by the network device.

33. (Original) The apparatus as recited in Claim 26, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of in response to determining that a particular functional area of the configuration data has been modified after the particular functional area of configuration data was received from the network device, changing the visual appearance of a particular user interface object from the plurality of user interface objects to visually indicate to a user that the particular functional area of the configuration data has been modified after the particular functional area of configuration data was received from the network device.

34. (Previously Presented) The apparatus as recited in Claim 26, wherein the step of determining which of the plurality of functional areas are supported by the network device includes querying the network device to determine which of the plurality of functional areas are supported by the network device.

35. (Previously Presented) The apparatus as recited in Claim 26, wherein the step of determining which of the plurality of functional areas are supported by the network device includes determining for which of the plurality of functional areas the network device and a client have compatible configuration application program interfaces.

36. (Original) The apparatus as recited in Claim 26, wherein the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the steps of:

in response to detecting a user selection of a particular user interface object from the plurality of user interface objects,

retrieving, from the network device, configuration data corresponding to the particular user interface object,

displaying the configuration data on a graphical user interface; and

in response to detecting that the configuration data retrieved from the network device is no longer consistent with configuration data implemented on the network device,

changing the visual appearance of the particular user interface object to indicate that the configuration data retrieved from the network device is no longer consistent with configuration data implemented on the network device.

37. (Withdrawn) A method for updating configuration data on a network device, wherein the configuration data includes configuration data for a plurality of functional areas supported by the network device the method comprising the machine-implemented steps of:

displaying the configuration data on a graphical user interface;
in response to a user changing a value of a configuration data item for one of the functional areas to a new value, updating values of the same configuration data item in the other functional areas from the plurality of functional areas to the new value to create updated configuration data; and
providing the updated configuration data to the network device.

38. (Withdrawn) The method as recited in Claim 37, further comprising the machine-implemented steps of:

in response to a user adding a new data item for one of the functional areas, adding the new data items to the other functional areas from the plurality of functional areas to the new value to create updated configuration data; and
providing the updated configuration data to the network device.

39. (Withdrawn) A method for updating configuration data on a network device, wherein the configuration data includes configuration data for a plurality of functional areas supported by the network device, the method comprising the machine-implemented steps of:

displaying the configuration data on a graphical user interface;
detecting a user selection of a user interface object that corresponds to one or more data items from a first functional area from the plurality of functional areas;
in response to detecting a user selection of a graphical user interface object associated with performing a copy and paste operation, overwriting values of one or more other data items from the first functional area with values of the one or more data items to create updated configuration data; and

providing the updated configuration data to the network device.

40. (Withdrawn) A method for updating configuration data on a network device, wherein the configuration data includes configuration data for a functional area supported by the network device, the method comprising the machine-implemented steps of:

displaying the configuration data on a graphical user interface;
in response to detecting a user selection of a graphical user interface object associated with performing a clone operation, generating a specified number of copies of the configuration data for a specified number of other functional areas to create updated configuration data; and
providing the updated configuration data to the network device.

41. (Withdrawn) The method as recited in Claim 40, wherein values of the specified number of copies of the configuration data are the same as values of the configuration data.

42. (Withdrawn) The method as recited in Claim 40, further comprising the machine-implemented step of determining a value for a data item in one of the specified number of copies of the configuration data by applying an algorithm to a value for the data item in the configuration data.

43. (Withdrawn) A machine-readable medium for updating configuration data on a network device, wherein the configuration data includes configuration data for a plurality of functional areas supported by the network device; the machine-readable medium carrying instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

displaying the configuration data on a graphical user interface;
in response to a user changing a value of a configuration data item for one of the functional areas to a new value, updating values of the same configuration data item in the other functional areas from the plurality of functional areas to the new value to create updated configuration data; and
providing the updated configuration data to the network device.

44. (Withdrawn) The machine-readable medium as recited in Claim 43, further comprising one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the steps of:

in response to a user adding a new data item for one of the functional areas, adding the new data items to the other functional areas from the plurality of functional areas to the new value to create updated configuration data; and providing the updated configuration data to the network device.

45. (Withdrawn) A machine-readable medium for updating configuration data on a network device, wherein the configuration data includes configuration data for a plurality of functional areas supported by the network device, the machine-readable medium carrying instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

displaying the configuration data on a graphical user interface;
detecting a user selection of a user interface object that corresponds to one or more data items from a first functional area from the plurality of functional areas;
in response to detecting a user selection of a graphical user interface object associated with performing a copy and paste operation, overwriting values of one or more other data items from the first functional area with values of the one or more data items to create updated configuration data; and providing the updated configuration data to the network device.

46. (Withdrawn) A machine-readable medium for updating configuration data on a network device, wherein the configuration data includes configuration data for a functional area supported by the network device, the machine-readable medium carrying instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

displaying the configuration data on a graphical user interface;
in response to detecting a user selection of a graphical user interface object associated with performing a clone operation, generating a specified number of copies of the

configuration data for a specified number of other functional areas to create updated configuration data; and
providing the updated configuration data to the network device.

47. (Withdrawn) The machine-readable medium as recited in Claim 46, wherein values of the specified number of copies of the configuration data are the same as values of the configuration data.

48. (Withdrawn) The machine-readable medium as recited in Claim 46, further comprising one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of determining a value for a data item in one of the specified number of copies of the configuration data by applying an algorithm to a value for the data item in the configuration data.

49. (Withdrawn) An apparatus for updating configuration data on a network device, wherein the configuration data includes configuration data for a plurality of functional areas supported by the network device, the apparatus comprising a memory storing instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:
displaying the configuration data on a graphical user interface;
in response to a user changing a value of a configuration data item for one of the functional areas to a new value, updating values of the same configuration data item in the other functional areas from the plurality of functional areas to the new value to create updated configuration data; and
providing the updated configuration data to the network device.

50. (Withdrawn) The apparatus as recited in Claim 49, wherein the memory further stores one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the steps of:
in response to a user adding a new data item for one of the functional areas, adding the new data items to the other functional areas from the plurality of functional areas to the new value to create updated configuration data; and
providing the updated configuration data to the network device.

51. (Withdrawn) An apparatus for updating configuration data on a network device, wherein the configuration data includes configuration data for a plurality of functional areas supported by the network device, the apparatus comprising a memory storing instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

- displaying the configuration data on a graphical user interface;
- detecting a user selection of a user interface object that corresponds to one or more data items from a first functional area from the plurality of functional areas;
- in response to detecting a user selection of a graphical user interface object associated with performing a copy and paste operation, overwriting values of one or more other data items from the first functional area with values of the one or more data items to create updated configuration data; and
- providing the updated configuration data to the network device.

52. (Withdrawn) An apparatus for updating configuration data on a network device, wherein the configuration data includes configuration data for a functional area supported by the network device, the apparatus comprising a memory storing instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

- displaying the configuration data on a graphical user interface;
- in response to detecting a user selection of a graphical user interface object associated with performing a clone operation, generating a specified number of copies of the configuration data for a specified number of other functional areas to create updated configuration data; and
- providing the updated configuration data to the network device.

53. (Withdrawn) The apparatus as recited in Claim 52, wherein values of the specified number of copies of the configuration data are the same as values of the configuration data.

54. (Withdrawn) The apparatus as recited in Claim 52, wherein the memory further stores one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the step of determining a value for a data item in one of the specified number of copies of the configuration data by applying an algorithm to a value for the data item in the configuration data.

55. (Previously Presented) The method of Claim 4 wherein the configuration data for at least two functional areas supported by the network device share a common configuration data item.

56. (Previously Presented) The method of Claim 4, further comprising the steps of:
generating and displaying a common user interface object on the graphical user interface,
wherein the common user interface object pertains to common configuration data
for a common functional area, wherein the common functional area pertains to at
least two interfaces of the network device;
receiving input that indicates a change to a data item in the common configuration data;
and
based upon the input, generating the modified configuration data, wherein the modified
configuration data indicates changes for the at least two interfaces.

57. (Previously Presented) The method of Claim 4, wherein:
the step of determining which of the plurality of functional areas are supported by the
network device includes determining, based on permission data, that a user has
permission to access one or more of the functional areas that are supported by the
network device; and
the step of generating and displaying the plurality of user interface objects further
comprises, based on which one or more of the functional areas the user has
permission to access, determining which user interface objects to generate and
display.

58. (Previously Presented) The machine-readable storage medium as recited in Claim 15,
wherein the configuration data for at least two functional areas supported by the network device
share a common configuration data item, and further storing one or more additional instructions
which, when executed by the one or more processors, cause the one or more processors to
perform the steps of:

generating and displaying a common user interface object on the graphical user interface,
wherein the common user interface object pertains to common configuration data
for a common functional area, wherein the common functional area pertains to at
least two interfaces of the network device;

receiving input that indicates a change to a data item in the common configuration data;
and
based upon the input, generating the modified configuration data, wherein the modified configuration data indicates changes for the at least two interfaces.

59. (Previously Presented) The machine-readable storage medium as recited in Claim 15, wherein:

the step of determining which of the plurality of functional areas are supported by the network device includes determining, based on permission data, that a user has permission to access one or more of the functional areas that are supported by the network device; and
the step of generating and displaying the plurality of user interface objects further comprises, based on which one or more of the functional areas the user has permission to access, determining which user interface objects to generate and display.

60. (Previously Presented) The apparatus as recited in Claim 26, wherein:

the configuration data for at least two functional areas supported by the network device share a common configuration data item; and
the memory further comprises one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to perform the steps of:
generating and displaying a common user interface object on the graphical user interface, wherein the common user interface object pertains to common configuration data for a common functional area, wherein the common functional area pertains to at least two interfaces of the network device;
receiving input that indicates a change to a data item in the common configuration data; and
based upon the input, generating the modified configuration data, wherein the modified configuration data indicates changes for the at least two interfaces.

61. (Previously Presented) The apparatus as recited in Claim 26, wherein:
- the step of determining which of the plurality of functional areas are supported by the network device includes determining, based on permission data, that a user has permission to access one or more of the functional areas that are supported by the network device; and
- the step of generating and displaying the plurality of user interface objects further comprises, based on which one or more of the functional areas the user has permission to access, determining which user interface objects to generate and display.